

## **APPENDIX A NRC NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS**

Dominion prepared this Environmental Report in accordance with the requirements of U.S. Nuclear Regulatory Commission (NRC) regulation 10 CFR 51.53. NRC included in the regulation a list of National Environmental Policy Act (NEPA) issues associated with license renewal of nuclear power plants. [Table A-1](#) lists these 92 issues and identifies the section in which Dominion addressed each issue in the Environmental Report. For expediency, Dominion has assigned a number to each issue and uses the issue numbers throughout the Environmental Report.

**Table A-1**  
**North Anna Power Station Environmental Report**  
**Discussion of License Renewal NEPA Issues<sup>a</sup>**

| <b>Issue</b>   | <b>Category</b> | <b>Section of this Environmental Report</b> |
|--|-----------------|---|
| 1. Impacts of refurbishment on surface water quality   | 1               | 4.0   |
| 2. Impacts of refurbishment on surface water use   | 1               | 4.0   |
| 3. Altered current patterns at intake and discharge structures   | 1               | 4.0   |
| 4. Altered salinity gradients  | 1               | 4.0   |
| 5. Altered thermal stratification of lakes   | 1               | 4.0   |
| 6. Temperature effects on sediment transport capacity  | 1               | 4.0   |
| 7. Scouring caused by discharged cooling water   | 1               | 4.0   |
| 8. Eutrophication  | 1               | 4.0   |
| 9. Discharge of chlorine or other biocides   | 1               | 4.0   |
| 10. Discharge of sanitary wastes and minor chemical spills   | 1               | 4.0   |
| 11. Discharge of other metals in waste water   | 1               | 4.0   |
| 12. Water use conflicts (plants with once-through cooling systems)   | 1               | 4.0   |
| 13. Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow) | 2               | 4.1   |
| 14. Refurbishment impacts to aquatic resources   | 1               | 4.0   |
| 15. Accumulation of contaminants in sediments or biota   | 1               | 4.0   |
| 16. Entrainment of phytoplankton and zooplankton   | 1               | 4.0   |
| 17. Cold shock   | 1               | 4.0   |
| 18. Thermal plume barrier to migrating fish  | 1               | 4.0   |
| 19. Distribution of aquatic organisms  | 1               | 4.0   |
| 20. Premature emergence of aquatic insects   | 1               | 4.0   |
| 21. Gas supersaturation (gas bubble disease)   | 1               | 4.0   |
| 22. Low dissolved oxygen in the discharge  | 1               | 4.0   |

**Table A-1 (continued)**  
**North Anna Power Station Environmental Report**  
**Discussion of License Renewal NEPA Issues<sup>a</sup>**

|     | Issue   | Category | Section of this<br>Environmental<br>Report |
|-----|---|----------|--|
| 23. | Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses                                  | 1        | 4.0  |
| 24. | Stimulation of nuisance organisms (e.g., shipworms)   | 1        | 4.0  |
| 25. | Entrainment of fish and shellfish in early life stages for plants with once-through and cooling pond heat dissipation systems | 2        | 4.2  |
| 26. | Impingement of fish and shellfish for plants with once-through and cooling pond heat dissipation systems                      | 2        | 4.3  |
| 27. | Heat shock for plants with once-through and cooling pond heat dissipation systems   | 2        | 4.4  |
| 28. | Entrainment of fish and shellfish in early life stages for plants with cooling-tower-based heat dissipation systems           | 1        | 4.0  |
| 29. | Impingement of fish and shellfish for plants with cooling-tower-based heat dissipation systems                                | 1        | 4.0  |
| 30. | Heat shock for plants with cooling-tower-based heat dissipation systems   | 1        | 4.0  |
| 31. | Impacts of refurbishment on groundwater use and quality   | 1        | 4.0  |
| 32. | Groundwater use conflicts (potable and service water; plants that use < 100 gpm)  | 1        | 4.0  |
| 33. | Groundwater use conflicts (potable, service water, and dewatering; plants that use > 100 gpm)                                 | 2        | 4.5  |
| 34. | Groundwater use conflicts (plants using cooling towers withdrawing make-up water from a small river)                          | 2        | 4.6  |
| 35. | Groundwater use conflicts (Ranney wells)  | 2        | 4.7  |
| 36. | Groundwater quality degradation (Ranney wells)  | 1        | 4.0  |
| 37. | Groundwater quality degradation (saltwater intrusion)   | 1        | 4.0  |
| 38. | Groundwater quality degradation (cooling ponds in salt marshes)   | 1        | 4.0  |

**Table A-1 (continued)**  
**North Anna Power Station Environmental Report**  
**Discussion of License Renewal NEPA Issues<sup>a</sup>**

|     | Issue  | Category | Section of this<br>Environmental<br>Report |
|-----|--|----------|--|
| 39. | Groundwater quality degradation (cooling ponds at inland sites)  | 2        | 4.8  |
| 40. | Refurbishment impacts to terrestrial resources   | 2        | 4.9  |
| 41. | Cooling tower impacts on crops and ornamental vegetation   | 1        | 4.0  |
| 42. | Cooling tower impacts on native plants   | 1        | 4.0  |
| 43. | Bird collisions with cooling towers  | 1        | 4.0  |
| 44. | Cooling pond impacts on terrestrial resources  | 1        | 4.0  |
| 45. | Power line right-of-way management (cutting and herbicide application)   | 1        | 4.0  |
| 46. | Bird collisions with power lines   | 1        | 4.0  |
| 47. | Impacts of electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)                            | 1        | 4.0  |
| 48. | Floodplains and wetlands on power line right-of-way  | 1        | 4.0  |
| 49. | Threatened or endangered species   | 2        | 4.10                                       |
| 50. | Air quality during refurbishment (non-attainment and maintenance areas)  | 2        | 4.11                                       |
| 51. | Air quality effects of transmission lines  | 1        | 4.0  |
| 52. | Onsite land use  | 1        | 4.0  |
| 53. | Power line right-of-way land use impacts   | 1        | 4.0  |
| 54. | Radiation exposures to the public during refurbishment   | 1        | 4.0  |
| 55. | Occupational radiation exposures during refurbishment  | 1        | 4.0  |
| 56. | Microbiological organisms (occupational health)  | 1        | 4.0  |
| 57. | Microbiological organisms (public health) (plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river) | 2        | 4.12                                       |
| 58. | Noise  | 1        | 4.0  |

**Table A-1 (continued)**  
**North Anna Power Station Environmental Report**  
**Discussion of License Renewal NEPA Issues<sup>a</sup>**

|     | Issue  | Category        | Section of this<br>Environmental<br>Report |
|-----|--|-----------------|--|
| 59. | Electromagnetic fields, acute effects (electric shock)   | 2               | 4.13                                       |
| 60. | Electromagnetic fields, chronic effects  | NA <sup>b</sup> | 4.0  |
| 61. | Radiation exposures to public (license renewal term)   | 1               | 4.0  |
| 62. | Occupational radiation exposures (license renewal term)  | 1               | 4.0  |
| 63. | Housing impacts  | 2               | 4.14                                       |
| 64. | Public services: public safety, social services, and<br>tourism and recreation                                       | 1               | 4.0  |
| 65. | Public services: public utilities  | 2               | 4.15                                       |
| 66. | Public services: education (refurbishment)   | 2               | 4.16                                       |
| 67. | Public services: education (license renewal term)  | 1               | 4.0  |
| 68. | Offsite land use (refurbishment)   | 2               | 4.17.1                                     |
| 69. | Offsite land use (license renewal term)  | 2               | 4.17.2                                     |
| 70. | Public services: transportation  | 2               | 4.18                                       |
| 71. | Historic and archaeological resources  | 2               | 4.19                                       |
| 72. | Aesthetic impacts (refurbishment)  | 1               | 4.0  |
| 73. | Aesthetic impacts (license renewal term)   | 1               | 4.0  |
| 74. | Aesthetic impacts of transmission lines (license renewal<br>term)  | 1               | 4.0  |
| 75. | Design basis accidents   | 1               | 4.0  |
| 76. | Severe accidents   | 2               | 4.20                                       |
| 77. | Offsite radiological impacts (individual effects from other<br>than the disposal of spent fuel and high level waste) | 1               | 4.0  |
| 78. | Offsite radiological impacts (collective effects)  | 1               | 4.0  |
| 79. | Offsite radiological impacts (spent fuel and high-level<br>waste disposal)   | 1               | 4.0  |
| 80. | Nonradiological impacts of the uranium fuel cycle  | 1               | 4.0  |

**Table A-1 (continued)**  
**North Anna Power Station Environmental Report**  
**Discussion of License Renewal NEPA Issues<sup>a</sup>**

| Issue                                       | Category        | Section of this<br>Environmental<br>Report |
|---|-----------------|--|
| 81. Low-level waste storage and disposal    | 1               | 4.0  |
| 82. Mixed waste storage and disposal        | 1               | 4.0  |
| 83. Onsite spent fuel                       | 1               | 4.0  |
| 84. Nonradiological waste                   | 1               | 4.0  |
| 85. Transportation                          | 1               | 4.0  |
| 86. Radiation doses (decommissioning)       | 1               | 4.0  |
| 87. Waste management (decommissioning)      | 1               | 4.0  |
| 88. Air quality (decommissioning)           | 1               | 4.0  |
| 89. Water quality (decommissioning)         | 1               | 4.0  |
| 90. Ecological resources (decommissioning)  | 1               | 4.0  |
| 91. Socioeconomic impacts (decommissioning) | 1               | 4.0  |
| 92. Environmental justice                   | NA <sup>b</sup> | 4.0  |

a. Source: 10 CFR 51, Subpart A, Appendix B, Table B-1. (Issue numbers added to facilitate discussion.)

b. Not applicable. Regulation does not categorize this issue.

NEPA = National Environmental Policy Act.

## **APPENDIX B VPDES PERMIT**

The Virginia Pollutant Discharge Elimination System permit for North Anna Power Station is a lengthy document. Appendix B contains a copy of the permit cover page to enable confirmation of the permit's existence, and the VPDES Permit Program Fact Sheet.



**COMMONWEALTH of VIRGINIA**  
DEPARTMENT OF ENVIRONMENTAL QUALITY

**Permit No. VA0052451**

Effective Date: January 11, 2001

Expiration Date: January 11, 2006

**AUTHORIZATION TO DISCHARGE UNDER THE  
VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM**

**AND**

**THE VIRGINIA STATE WATER CONTROL LAW**

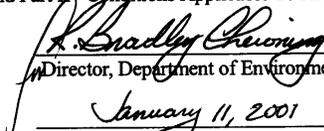
In compliance with the provisions of the Clean Water Act as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto, the following owner is authorized to discharge in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in this permit.

Owner: **Virginia Electric & Power Company**  
Facility Name: Virginia Power – North Anna Nuclear Power Station  
City: Mineral  
County: Louisa  
Facility Location: on Route 700 near Mineral

The owner is authorized to discharge to the following receiving stream:

Stream: Lake Anna and North Anna River  
River Basin: York  
River Subbasin: N/A  
Section: 03  
Class: III  
Special Standards: None

The authorized discharge shall be in accordance with this cover page, Part I - Effluent Limitations and Monitoring Requirements, and Part II - Conditions Applicable To All VPDES Permits, as set forth herein.

  
\_\_\_\_\_  
Director, Department of Environmental Quality  
\_\_\_\_\_  
January 11, 2001  
Date

Fact Sheet Page 3  
Permit No. VA0052451

19. Stormwater Application submitted (Y/N)? Y

See Attachment G

20. Material Stored:

Radioactive materials regulated by Nuclear Regulatory Commission. Others will be covered in O&M Manual to be required by this permit.

21. Changes to the Permit:

See Attachment H

22. Variances/Alternate Limits or Conditions: The permittee has requested alternative effluent limitations under 316(a). Pursuant to a Study Plan approved by the Board, Virginia Power conducted a 316(a) study in 1984 and 1985 and submitted a 316(a) Demonstration Report on June 24, 1986. The Board has reviewed the study and demonstration and found that effluent limitations more stringent than the thermal limitations included in this permit are not necessary to assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in Lake Anna and the North Anna River downstream of the lake.

By letter dated April 28, 2000, the permittee formally stated that conditions have not changed substantially and thereby requested continuation of the 316(a) variance. Based on the Board's review of the annual reports, the Board believes that the variance should be continued and so does in the reissuance of this permit.

23. Public Notice Information:

Persons may comment in writing to the DEQ on the proposed reissuance of the permit within 30 days from the date of the first notice. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The Director of the DEQ may decide to hold a public hearing if public response is significant. All pertinent information is on file and may be inspected, and arrangements made for copying by contacting :

Janardan R. Pandey  
Virginia Department of Environmental Quality  
Valley Regional Office  
P.O. Box 3000  
Harrisonburg, Virginia 22801  
Telephone No. (540) 574-7800

Following the comment period, the Board will make a determination regarding the proposed reissuance. This determination will become effective, unless the Director grants a public hearing. Due notice of any public hearing will be given.